

**FEASIBILITY STUDY**

**Town Of Pembroke**

**Improvements to SR 1556 (Normal Street)  
From SR 1339 (Deep Branch Road)  
To NC 711 (West 3<sup>rd</sup> Street)**

**Robeson County**

**Division 6**

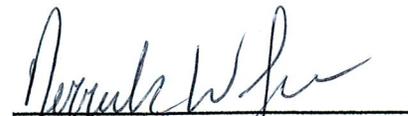
**FS -0206D**



**Prepared by the  
Program Development Branch  
N. C. Department of Transportation**



**R. N. Prince  
Feasibility Studies Engineer**

  
**Derrick W. Lewis, P.E.  
Feasibility Studies Unit Head**

6-15-05  
**Date**

**Town of Pembroke**  
**Improvements to SR 1556 (Normal Street)**  
**From SR 1339 (Deep Branch Road) to**  
**NC 711 (West 3<sup>rd</sup> Street),**  
**Robeson County**  
**FS – 0206D**

**I. General Description**

This feasibility study describes the improvements necessary to provide pedestrian accommodations on SR 1556 (Normal Street) from SR 1339 (Deep Branch Road) to NC 711 (West 3<sup>rd</sup> Street), a distance of approximately 0.9 miles. The project location is shown on Figure 1. The recommended cross-section for this project is a three-lane curb and gutter section, 40 feet wide face to face of curbs, with 15-foot berms and 5-foot sidewalks on 100 feet of right-of-way.

As part of this study, two different alignment alternatives were evaluated. Alternative 1 proposes to widen Normal Street symmetrically about the existing centerline for the entire length of the project. However, There are concerns with the closely spaced Normal Street and South Odum Street/Philadelphus Road (SR 1340) intersections on NC 711. These two intersections are separated by approximately 325 feet center to center. This results in numerous vehicular conflict points and increased risk of accidents.

In order to alleviate vehicular conflicts and operational and safety issues associated with the closely spaced intersections identified in Alternative 1, realigning Normal Street to tie into NC 711 at Philadelphus Road/South Odum Street is considered as a potential solution (Alternative 2). In Alternative 2, the alignment would be symmetrical about the existing Normal Street centerline from Deep Branch Road to just northeast of Harry West Lane, and then would proceed on new location from this point to intersect with South Odum Street at West 5<sup>th</sup> Street. Finally, this alternative would widen South Odum Street asymmetrically to the west from West 5<sup>th</sup> Street to NC 711.

This is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project including cost, and to identify potential problems that may require consideration in the planning and design phases.

## **II. Background**

The purpose of this project is to promote a safer environment for pedestrians as well as improve vehicle safety and operations utilizing the Normal Street corridor to access the University of North Carolina at Pembroke on NC 711 and Pembroke Elementary School near Deep Branch Road. Based on comments received from the Town of Pembroke, pedestrians leave the shoulder and walk in the highway during heavy rainfall. The proposed widening of Normal Street to a three-lane curb and gutter facility with sidewalks is anticipated to provide safer pedestrian accommodations and improved traffic operations.

The Town of Pembroke, Robeson County and the Lumber River Rural Planning Organization support this project.

No funded TIP projects are in the immediate vicinity of the project. However, TIP project R-4428 (the multi-lane widening of NC 711 from SR 1557 to SR 1340) is a non-funded project in this vicinity.

Normal Street is currently a two-lane shoulder facility with 23' of pavement and 11' lanes from Deep Branch Road to approximately 300' north of Harry West Lane. The remainder of Normal Street consists of two-lane curb and gutter with 36' face to face of curbs. South Odum Street is currently a two-lane shoulder facility with 29' of pavement.

The development along Normal Street is a mixture of residential, agricultural, institutional (Pembroke Elementary School located at the Deep Branch Road intersection), commercial (strip development on Normal Street between 4<sup>th</sup> Street and NC 711), medical (Pembroke Health Center), recreational (Picnic facility at NC 711 and South Odum Street/Philadelphus Road).

## **III. Traffic and Safety**

There is one existing traffic signal within the project study area, located at South Odum Street/Philadelphus Road and NC 711 intersection (Alternative 2).

The current year Average Daily Traffic (ADT) along Normal Street within the project limits is 3900 vehicles per day (vpd) and is projected to be 6000 vpd in the Design Year (DY) 2030. Truck traffic is estimated to make up approximately 3 percent of the daily traffic. If the Normal Street traffic is realigned to South Odum Street, the current year volumes and 2030 design year traffic projections will increase to 5,700 vpd and 9,100 vpd respectively.

Currently, both existing Normal Street and South Odum Street are operating at Level of Service (LOS) C or higher. If no improvements are made, it is anticipated that Normal Street and South Odum Street will operate at a LOS D or better in the 2030 design year, with the exception of the NC 711/Philadelphus Road/South Odum Street signalized intersection. The improvements necessary to achieve an acceptable D LOS at this intersection are considered beyond the scope of this project but are discussed in the unfunded TIP project R-4428.

Between 2000 and 2003, 14 accidents occurred within the project limits. There were 2 injury accidents, 12 property damage accidents and no fatalities as a result of these incidents. The accident rate for this 0.9-mile portion of roadway is 425.75 accidents per 100 million vehicle miles of travel (acc/100mvm), which is higher than the 2000-2002 statewide rate of 422.44 accidents/100mvm for two-lane undivided secondary routes. It should be noted that 86% of the total accidents occurred at the intersection of Normal Street and NC 711. The proposed realignment in alternative 2 would reduce the likelihood of the accidents occurring in the future. In addition safety and operations would be improved by providing pedestrian accommodations with the signalized intersection.

#### IV. Description of Alternatives

This project proposes to upgrade Normal Street to a curb and gutter facility with pedestrian accommodations from Deep Branch Road (SR 1339) to NC 711 (West 3<sup>rd</sup> Street), a distance of approximately 0.9 miles (See Figure 1). Based on our analysis, a three-lane curb and gutter section with sidewalks is considered an appropriate cross section to the operational and safety needs of this facility. Therefore, the recommended cross section for all alternatives is a three lane curb and gutter section, 40 feet wide face to face of curbs, with sidewalks on 100 feet of right of way. It is estimated that the sidewalks would cost approximately \$100,000 per side and are included in the construction cost estimates provided below.

Two alignment alternatives were evaluated in this feasibility study and the details are as follows:

**ALTERNATIVE #1** was developed because the Town of Pembroke requested that Normal Street between Deep Branch Road and NC 711 be improved, to accommodate the growing number of motorists and pedestrians that utilize this route to access the University of North Carolina at Pembroke and Pembroke Middle School. This alternative is a three (3) lane curb and gutter section, 40feet wide face to face of curbs with 15 foot berms and 5' sidewalks on 100' of r/w following the existing alignment of Normal Street. While the recommended three-lane section with sidewalks will meet the requested need, There are concerns with the closely spaced Normal Street and South Odum Street/Philadelphus Road intersections on NC 711. These two intersections are separated by approximately 325 feet center to center, and create an undesirable traffic situation due to the numerous vehicular and pedestrian conflict points.

Under Alternative #1, it is anticipated there will be nine (9) residences and three (3) businesses relocated. The total cost of this alternative is estimated to be \$5,400,000.

Right-of-Way (100')	3,200,000
Construction	2,200,000
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Estimated Project Cost (Alternative 1)	5,400,000

**ALTERNATIVE #2** was developed in order to alleviate the traffic safety and operational concerns associated with the closely spaced intersections identified in Alternative 1. In this alternative, the alignment would be symmetrical about the existing Normal Street centerline from Deep Branch Road to just northeast of Harry West Lane, and would then proceed on new location from this point to intersect with South Odum Street at West 5<sup>th</sup> Street. Finally, this alternative would widen South Odum Street asymmetrically to the west from West 5<sup>th</sup> Street to NC 711. This alternative is a three (3) lane curb and gutter section, 40 feet wide face to face of curbs with 15 foot berms and 5' sidewalks on 100' of r/w following the alignment described above. With this alternative the existing NC 711/Normal Street intersection will be restricted to right in/right out movements only or Normal Street will be converted to a Cul-de-sac at NC 711. A determination of which configuration will be utilized at this location will be made during later design and planning stages.

Under Alternative #2, it is anticipated there will be four (4) residences and two (2) businesses relocated. The total cost of this alternative is estimated to be \$4,900,000.

Right-of-Way (100')	2,100,000
Construction	2,800,000
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Estimated Project Cost (Alternative 2)	4,900,000

## V. Community Issues

A detailed investigation was not conducted for this feasibility study, however no impacts to schools, parks, recreation areas, or community facilities are anticipated with this project. However, there is a water tower located approximately 220 feet northeast of Harry West Lane off the proposed right-of-way in the project vicinity.

Based on a resolution from the Town of Pembroke, there is a significant student population that uses the Normal Street corridor, and Normal Street is prone to flooding during heavy rainfalls causing school children to walk in the street.

## VI. Natural and Environmental Issues

A detailed environmental study was not conducted as part of this feasibility study. However, existing information available for this project area has been screened for environmental and historic concerns. No impacts to historic properties are anticipated.

The northern portion the project is located in the Lumber River Water Supply Watershed for Lumberton and the remainder is located in the Lumber River High Quality Water Zone.

There is no indication of threatened or endangered species impacting the area based on maps developed by the Department of Environmental, Health & Resources and Natural Heritage Section.

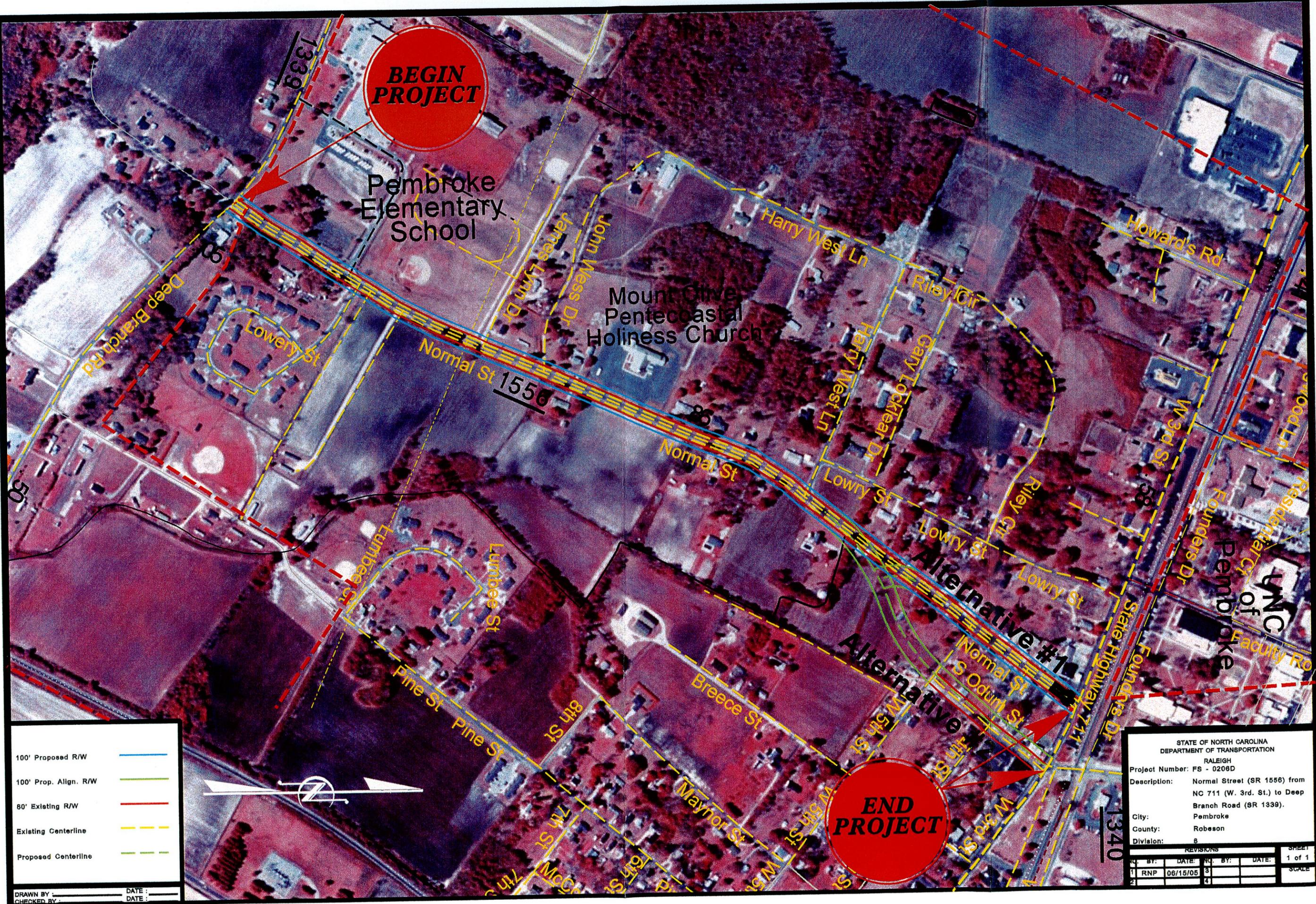
## **VII. Recommendations**

Alternative #1 is based on the Town of Pembroke's request to upgrade Normal Street to accommodate the growing number of motorists and pedestrians utilizing this facility. However, given the traffic operational and safety concerns associated with the intersection spacing on NC 711, this alternative is not recommended.

**Instead, the implementation of Alternative #2 is recommended and will provide the requested pedestrian accommodations as well as address the traffic operational and safety concerns associated with the closely spaced intersections on NC 711. The total cost of the recommended improvements is \$4,900,000 including \$2,100,000 for right-of-way and \$2,800,000 for construction.**

## **VIII. Additional Comments**

No special bicycle accommodations were investigated for this project. It should be noted that the CSX railroad "SE branch" line runs parallel to NC 711. Therefore, it is recommended that the project limits terminate prior to reaching the railroad right-of-way.



**BEGIN PROJECT**

Pembroke Elementary School

Mount Olive Pentecostal Holiness Church

**END PROJECT**

100' Proposed R/W	
100' Prop. Align. R/W	
60' Existing R/W	
Existing Centerline	
Proposed Centerline	

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
Project Number: FS - 0206D					
Description: Normal Street (SR 1556) from NC 711 (W. 3rd. St.) to Deep Branch Road (SR 1339).					
City: Pembroke					
County: Robeson					
Division: 6					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	RNP	06/15/05	3		
2			4		
					SHEET 1 of 1
					SCALE

# FS - 0206D Pembroke, Robeson County Figure #1

## LEGEND

-  Hospital Locations
-  Community College Locations
-  Public Schools
-  Major Utilities (Tele, Power, Air, Pipe)
-  USFWS Conserv. Easements
-  Game Lands
-  Federal Owned Lands
-  Lands Managed for Conserv. & Open Space
-  Land Trust Conserv. Prop.
-  State Parks
-  Land Trust Priority Areas
-  State Owned Property
-  Land & Water Conserv. Fund
-  Conservation Tax Credit Properties
-  Rivers
-  City Boundaries
-  Airports
- Roads**
-  I
-  NC
-  SR
-  US
-  Water Bodies
-  Project Limits
-  New Project Limits

